202301UECM1404OE1b

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Review of preview

Started on	Monday, 6 February 2023, 12:56 PM
Completed on	Monday, 6 February 2023, 12:56 PM
Time taken	23 secs
Grade	**0** out of a maximum of 10 (**0**%)

1
Marks: 1

You are given $\delta_t = 2/(1+t)$. A payment of 380 at the end of 5 years and 760 at the end of 10 years has the same present value as a payment of 280 at the end of 4 years and X at the end of 9 years. Calculus X. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 563.654729
Marks for this submission: 0/1.

2
Marks: 1

You are given:

- $\delta_t = 1/(4+t)$; and
- the total interest earned during the first n years on an investment of 1 at time t = 0 is 2.2.

Determine n. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 8.8
Marks for this submission: 0/1.

3
Marks: 1

It takes 13.872 years for an initial investment to double at a force of interest δ. How long will it take for an initial investment to triple at a nominal rate of interest numerically equal to δ and convertible twice a year? _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 22.245769
Marks for this submission: 0/1.

4
Marks: 1

You are given two loans, with each loan to be repaid by a single payments in the future. Each payment include both principal and interest. The first loan is repaid by a 3400 pyament at the end of 4 years. The interest is accrued at 12% per annum compounded semiannually. The second loan is repaid by a 4400 pyament at the end of 5 years. The interest is accrued at 10% per annum compounded semiannually. These two loans are to be consolidated. The consolidated loan is to be repaid by two equal instalments of X, with interest 14% per annum compounded semiannually. The first payment is due immediately and the second payment is due one year from now. Calculate X. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 2580.51
Marks for this submission: 0/1.

5 Marks: 1

At a certain interest rate the present value of the following two payment patterns are equal:

- 229 at the end of 9 years plus 565 at the end of 18 years.
- 654.53 at the end of 9 years.

At the same interest rate, 114.0 invested now plus 339.0 invested at the end of 9 years will accumulate to P at the end of 18 years. Calculate P. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 651.083971
Marks for this submission: 0/1.

6 Marks: 1

You invest 5100 today and plan to invest another 2550 two years from today. You plan to withdraw 7,650 in n years and another 7,650 in n+5 years, exactly liquidating your investment account at that time. If the effective rate of discount is equal 8%, find n. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 6.701611
Marks for this submission: 0/1.

7 Marks: 1

Payments of 400, 600, and 800 are made at the end of years 10, 11 and 13, respectively. Interest is accumulated at an annual effective rate of 3%. You are to find the point in time at which single payment of 1800 is equivalent to the above series of payments. You are given:

- X is the point in time calculated by the method of equated time.
- Y is the exact point in time.

Calculate X+Y. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 23.3107
Marks for this submission: 0/1.

8 Marks: 1

Jeff puts 100 into a fund that pays an effective annual rate of discount of 22% for the first two years and a force of interest of rate $\delta_t = 2t/(t^2 + 8)$, $2 \le t \le 4$, for the next two years. At the end of four years, the amount in Jeff's account is the same as what it would have been if he had put 100 into an account paying interest at the nominal rate of i per annum compounded quarterly for four years. Calculate i. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.308862
Marks for this submission: 0/1.

9 Marks: 1

At time $t = 0$, John deposit 2,000 into a fund which credits interest at a nominal interest rate of 13% compounded semiannually. At the same time, he deposits P into a different fund which credits interest at a nominal discount rate of 5% compounded monthly. At time $t = 15$, the amount in each fund are equal. What is the annual effective interest rate earned on the total deposit, $2000+P$, over the 15-year period? _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.080882
Marks for this submission: 0/1.

10

Marks: 1

You are given a loan on which interest is charged over 4-year period, as follows:

- an effective rate of discount of 6.1% for the first year;
- a nominal rate of discount of 6.0% compounded every 2 years for the second year;
- a nominal rate of interest of 4.6% compounded semiannually for the third year; and
- a force of interest of 5.9 for the forth year.

Calculate the annual effective rate of interest over the 4-year period. _____

Answer:

Make comment or override grade

Incorrect
Correct answer: 0.059539
Marks for this submission: 0/1.